

IN THE CLAIMS

1. (Currently Amended) A wire bonding method for pressure welding a metallic wire to ~~device~~ a semiconductor chip having a bonding pad while applying ultrasonic vibration when the semiconductor chip is mounted on a substrate, said method comprising the steps of applying pressure between the metallic wire and the device semiconductor chip and simultaneously applying a vibratory force thereto created by an oscillator, detecting the degree of bonding between the metallic wire and the device by a feedback signal from the oscillator, and stopping the application of ultrasonic vibration and pressure in response to the detection of completion of the state of bonding determined from an abrupt change of the waveform of the feedback signal.

2. - 6. Cancelled

7. (Currently Amended) A wire bonding method as set forth in claim 6 1 wherein the device ~~comprises a semiconductor chip and the~~ metallic wire is welded to a bonding pad on the semiconductor chip.

8. (Canceled)

9. (Currently Amended) ~~A wire bonding method as set forth in claim 5 wherein the completion of bonding~~ for pressure welding a metallic wire to ~~device~~ a semiconductor chip having a bonding pad while applying ultrasonic vibration when the semiconductor chip is mounted on a substrate, said method comprising the steps of applying pressure between the metallic wire and the semiconductor chip and simultaneously applying a vibratory force thereto created by an oscillator, detecting the degree of bonding between the metallic wire and the device by a feedback signal from the oscillator, and stopping the application of ultrasonic vibration and pressure in response to the detection of completion of the state of bonding is determined from a lack of significant change in the waveform of the feedback signal.

10. (Original) A wire bonding method as set forth in claim 9 wherein the device comprises a semiconductor chip and the metallic wire is welded to a bonding pad on the semiconductor chip.

11. (Original) A wire bonding method as set forth in claim 10 wherein the semiconductor chip is mounted on a substrate when the metallic wire is welded.

12. (Cancelled).

13. (Amended) A wire bonding apparatus ~~as set forth in claim 12~~ having a tool for holding a metallic wire to press it against a device, a vibrator for applying ultrasonic vibration to said tool, an oscillator for powering said vibrator, a control section for controlling output of said oscillator, a pressing device for applying pressing force to said tool, a bonding detector that detects the degree of bonding of the metallic wire to the device to advise said control section when to terminate welding wherein the bonding detector detects the completion of welding by sensing an abrupt change of the waveform of a feedback signal from the oscillator.

14. (Amended) A wire bonding apparatus ~~as set forth in claim 12~~ having a tool for holding a metallic wire to press it against a device, a vibrator for applying ultrasonic vibration to said tool, an oscillator for powering said vibrator, a control section for controlling output of said oscillator, a pressing device for applying pressing force to said tool, a bonding detector that detects the degree of bonding of the metallic wire to the device to advise said control section when to terminate welding wherein the bonding detector detects the completion of welding by sensing a lack of significant change of the waveform of a feedback signal from the oscillator.